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ABSTRACT

This paper describes the development by the Mexican Electric Power Research Institute (Instituto de Investigaciones Electricas or IIE) over a 10-year period of a publications and conferences database (PCDB) of research and development output of the institute. The paper begins by listing the objectives of the database and describing data coverage and specifications for written or verbal works used to disseminate research and development output (Research and Development Dissemination Units or RDDU), as well as for the media used to transmit the works, e.g., journals, books, or conferences. Data sources are then discussed, including the collection of preliminary information via forms, files, and publications from the IIE department and data filtering and validation through questionnaires completed by individual researchers. The main classifications of the database are listed and briefly described, i.e., application areas, economic sectors, media classification, publications content (level of complexity), and research units. The database structure is also described, including the database management system, files and record definition, and software development. Preliminary results of database implementation are briefly described: (1) a compendium of bibliographic information on the RDDU; (2) quality assessment of the RDDU; (3) quality assessment of the media used to transmit the RDDU; (4) statistical reports on the structure and composition of the RDDU and media; and (5) a catalog of the media used to disseminate the RDDU that will be published. Tables showing the subdivisions of the database classifications and sample entries from the compendium are appended. (10 references in English, 4 in Spanish) (MES)

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DEVELOPMENT OF A PUBLICATIONS AND CONFERENCES DATA BASE IN THE MEXICAN ELECTRIC POWER RESEARCH INSTITUTE

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ABSTRACT

This paper presents the efforts of a Mexican R and D institute to build up a publications and conferences data base over a ten year period. It describes the process of development of the data base and the problems encountered in the gathering, filtering and storing of data. The main classifications of analysis are described as well as the preliminary results obtained.

INTRODUCTION

The need for R and D output measurement and assessment is well known for those engaged in science management. Although it may be conceded that this involves a number of difficulties, it can not be denied that there is an output from R and D activities. [1]

Indicators for the measurement and assessment of at least part of the output of R and D activities can be constructed on the basis of the quantity and quality of scientific publications, patents and conferences. [2]

Developed countries have constructed international data bases with information regarding publications and patents, which can be consulted for bibliometric and patent analysis. Unfortunately, developing countries have several limitations to measure their R&D output because of the mentioned data bases have the following restrictions:

Firstly, the main computerized data bases available for bibliometric analysis, e.g. The Institute of Scientific Information data base, include publications from developed

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countries but omit a great deal of the work published in Third World countries.

Secondly, the international data bases store articles published in journals and patents but do not include other kinds of media for scientific knowledge, such as that transmitted at conferences, symposia, seminars, round tables and lectures.

Thirdly, R and D institutes from Third World countries do not take a systematic inventory of their researchers' scientific production. [3][4][5][6]

Judging from these limitations, it may seem that no output measurement is feasible in developing countries. However, the Instituto de Investigaciones Electricas (IIE) decided to design and implement a data base concerned with the researchers' publications and conferences, which is described in the following paragraphs.

OBJECTIVE

The IIE publications and conferences data base (PCDB) was conceived, developed and implemented with the following aims:

- To have an instrument for the measurement and assessment of part of the institute's research output
- To disseminate the papers and conferences donned by the researchers in order to strengthen the promotion of new projects
- To facilitate interaction between the researchers themselves, and with the scientific community
- To serve as a model or example to similar institutes from developing countries that wish to develop their own methods to collect data on publications and conferences.

DATA DESCRIPTION

- **Coverage**

The IIE (PCDB) contains information about the work donned by researchers to disseminate scientific and technological knowledge acquired by means of R and D projects in the Institute. This work takes the form of articles published in journals, books (and contribution to books), papers submitted at conferences, symposia, meetings, and oral dissertations at seminars, round

tables and lectures. It excludes project reports, courses, lectures presented at political meetings, expositions, films, videos and tapes. It covers the full production generated by the researchers between Jan/1977-Dec/1986, and it comprises IIE research in all areas. It takes into account all of the research units and includes information about 2411 R and D diffusion units (RDDU) presented in 487 different media.

INSTITUTO DE INVESTIGACIONES ELECTRICAS

- Specifications

We denominate 'R and D diffusion unit' (RDDU) to any written or verbal work elaborated to disseminate the R and D output of the institute, e.g. article, paper, lecture; 'media' is used to denominate any vehicle used to transmit it, e.g. journal or book title, conference,...etc.

For the RDDU and for media the following areas were considered:

RDDU

- Identification data
  . Title
  . Classification (article, conference, lecture...etc)
  . Research unit

- Organizers or publisher data
  . Name of organizers/publisher
  . Volume, number and page of publication
  . Place and date of presentation/publication

- Research data
  . Application areas
  . originality
  . Type of content
  . Associate R and D project(s)

- Author(s) data
  . Number of authors
  . Author(s) name(s) and title(s)
  . Author(s) organization (Research Unit) and country
  . Author(s) engagement date, departure date and status (limited to IIE researchers)

MEDIA

- Identification data
  . Media title and code

- Organizers or publisher data
  . Economic sector and nationality of organizers or publisher

- Media selectivity data
  . Scientific and technical category
  . Disciplines involved
  . Originality
  . Referee review

- Participant data
  . Authors/lecturers precedence
  . Readers/assistants precedence

- Circulation data
  . Countries of dissemination of journals or proceedings
  . Universality of language used

DATA SOURCES

- **Initial data sources**

Before designing the survey, preliminary information was collected from the following sources:

a) Forms used by the research units to report publications and participation in conferences

b) Files from the IIE department that promoted the organization of conferences and seminars

c) Reports of the IIE control project system

d) Posters and brochures of conferences organized by the IIE

e) Contributions to the IIE Journal (BOLETIN IIE)

f) Books published by the IIE

The collected information was stored in a preliminary file of the data base. Then a brief analysis was performed revealing the following limitations and problems:

- This information represented only a fraction of the researchers' production in the decade Jan/1977-Dec/1986.

- There were mistakes and misinformation in some of the RDDU fields

For the reasons cited above, it was necessary to filter and validate the collected information and to locate the missing

work. Therefore, a series of questionnaires was designed for that purpose.

- Questionnaires and Instructions

The data reported was gathered by means of a survey distributed to researchers. The questionnaires and the means by which researchers surveyed were selected were simple and direct.

Two one-page questionnaires were designed. One was oriented towards the RDDU and the other to the media used to disseminate the research.

The nine questions concerning the RDDU were short and simple; four required only an X or a number in the appropriate box. The media questionnaire consisted of ten questions, four of which required only an X or a number in the appropriate box. Instructions and definitions were written at the bottom of both questionnaires.

Questionnaires were previously filled in using the preliminary information available in the data base. All of the RDDU elaborated by each author were reported in a separate questionnaire in chronological order. Multiauthor RDDU were dealt with separately in the individual author's questionnaire.

- Data collection

Each questionnaire was accompanied by a letter of transmittal indicating the purpose of the data base and that there was a good bit of misinformation about the RDDU generated during the past decade. It was explained that the researchers themselves were best qualified to comment about their work, and that it was hoped the results of the survey would be helpful to both the researchers themselves and to the Institute.

The survey was carried out using the aforementioned questionnaires, after having visited all of the researchers in the Institute (637 to Dec, 1986) who validated and supplemented the available information, and incorporated the missing RDDU.

Questionnaires were given to individual researchers, asking them for information about the RDDU where they appeared as first publishing author; RDDU where they signed as coauthors were included just for their control. In cases where the first publishing author was no longer working at the IIE, coauthors were consulted.

Questionnaires were collected and reviewed . Where a lack of information still existed, authors were again questioned by

telephone.

- **Data filtering and validation**

The data gathered was stored in the data base, in order to facilitate its sorting and reporting for screening and validation purposes. Two filtering processes were applied. First, RDDU, were identified that were to be deleted for not being concerned with the data base objective. Deleted research included the following cases:

- Presented at political meetings.
- Signed by authors external to IIE (as first publishing author)
- Prepared before the engagement of the author(s) at IIE, or after their departure.
- Involved in disciplines not included in the R and D Institute areas.
- Submitted for referee review, but not yet accepted by the publisher
- Duplicate RDDU.

The RDDU'S included in the above categories were erased from the data base master file and transferred to a temporary file.

A second validation process was carried out to guarantee the congruence of the information. The purpose of the filtering was to :

- Standardize the media titles.
- Maintain congruence between the following fields:
  - . Title of media and type of media
  - . Title of media and place of presentation
  - . Publications and type of content codes
  - - IIE authors and research unit

CLASSIFICATIONS

Five main classifications were developed for the purpose of analysis. Other minor classifications were also elaborated, their categories being implicit in the questionnaire answers, but we feel it is not relevant to detail them here. The structure of the main classifications is as follows:

- **Application areas**

A classification portraying the main installations, equipment, systems and activities of the Mexican electrical sector was developed. Seven macrolevels were considered (Table 1), each one being divided into five consecutive sublevels. During its development, the following reference material was used: The Thesaurus and The Research and Development Categories elaborated by EPRI (The Electric Power Research Institute), flow charts depicting components of power plants, found in books concerning energy and power generation, as well as interviews with specialists . Items were translated to a seven digit code and RDDU were classified at a more specific level using the research title as classification criteria. [7][8]

- **Economic sectors**

In order to identify the economic sector of the media used to disseminate the IIE research, a classification was elaborated taking into account eight macrosectors. (Table 2) The classification include the main sectors of the National Accounts System. The R and D institutes, Higher Education Institutions, International organizations and the specialists make up separate sectors, and included a multisector item to classify media where their organizers are from different sectors. Media were classified using the organizers or the publishing sector as classification criteria. [9]

- **Media Classification**

The media used to disseminate the research was differentiated to facilitate the assessment of the research (Table 3) It was separated into two main groups depending on the form by which the research was transmitted, i.e. written or verbal. These broad categories were separated according to the function of their selectivity in different internal items, running from international journals reported in the Science Citation Index (SCI) to lectures.

- **Publications Content**

The level of complexity of the publications was differentiated according to the presence of mathematical formulas and codes in its content. Four levels were identified, running from totally narrative texts to texts containing a great number of formulas and mathematical codes. (Table 4)

- **Research Units**

A classification which reveals the administrative structure of the IIE was designed. Twenty-three research units appeared, grouped into five main research divisions.

DATA BASE STRUCTURE

- Files Manager

The data base was developed using an easy-to-use data management language, for computers DIGITAL (VAX or PDP) called DATATRIEVE (DTR). [10]

DTR is useful for designing data bases supported by several index sequential files linked over a key.

DTR has integrated a data dictionary for the files management.

DTR commands and statements permit:

- Files and record definition
- Domains and view definition
- Retrieving data
- Entering new data
- Modifying data
- Variables, functions and expressions definition
- Procedures and tables definition
- Report writing
- Graphics

Records could be retrieved and grouped into collections or subcollections over a common field using arithmetic or boolean operators.

DTR also contains the following special features :

- A forms management system
- An incorporated editor
- Calls from other high level languages like BASIC, COBOL, FORTRAN, PASCAL.

- Files and record definition

Three index sequential files define the structure of the data base. The content of the RDDU was stored in a file that includes a record of 976 bytes, and contains 31 different fields with a hierarchy field devoted to storing authors' data. The RDDU file can be linked to a projects file over the project number that is shared by both files.

The authors' data was stored in a separate file linked to the RDDU file over the employee number, which is a field shared by both. The record includes an extension of 62 bytes with 10 different fields.

A media file stores media data, and is linked with the RDDU file over the media code. Its record has an extension of 191 bytes with 27 different fields.

There are 17 tables including the descriptions of the codes used in the files.

- **Software development**

There are 20 Dtr procedures and 10 fortran 77 programmes which make possible:

- Load and delete data
- Validate new date
- Writing reports
- Statistics generation
- Plot generation

PRELIMINARY RESULTS

The initial results obtained from the data base are the following:

1. The edition of a compendium that contains information about all the RDDU developed in the reporting decade [11]. The compendium presents a bibliographic note for the RDDU, reporting the research and media titles, the place and date of presentation (in the case of articles, the volume, number and pages of the journal where the research is reported), the associate R and D project, the author(s) and the research unit

Bibliographic notes were divided according to their areas of application in an order ranging from the general to the specific. There are two indexes facilitating the identification of the bibliographic notes, which can be located by application areas or by authors.

The purpose of this compendium is to :

- Strengthen the information presented to IIE users for promoting projects and services

- Facilitate identification of previous research to back up projects and activities.

- Facilitate communication among IIE researchers and between researchers and the scientific community.

In table 5 is presented a sample of the bibliographical notes included in the compendium.

2. The assessment of 2411 RDDU that have been done by the researchers in the last ten years. These RDDU have been disseminated through 80 periodical journals and 407 different conferences [12]. Table 6 presents the levels of quality of the RDDU generated.

3. The assessment of the 487 media used for transmitting the RDDU donned. In table 7 are illustrated the levels of quality of a sample of the 80 periodicals used to disseminate the RDDU [12].

4. The edition of two statistical reports that presents the structure and composition of the RDDU and the media [13][14].

5. The preparation of a media catalog that sows the titles of the media used to disseminate the RDDU that will be published.

CONCLUSIONS

A publication and conference data base constitutes a valuable instrument for institutes from Third World countries that need to collect and systematize information about a part of their R and D output.

It makes it possible to obtain information concerning the measurement and assessment of the RDDU done by the researchers and the media used to disseminating.

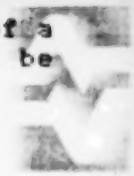
It facilitate the printing of reports disseminating the R and D output of the institute.

It can be developed by collecting the information available in the institute's files and reports, and filtering it by consulting researchers.

Any small computer or PC is adequate for storing the data base and unsophisticated software development is necessary. are Our experience should be useful to similar institutes.

As can be seen, the purpose of our work up until now has been to

design and implement the data base, and the development of a method for the assessment of the RDDU and the media that will be reported in a forthcoming paper.



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NOTES AND REFERENCES

[1] - C. Freeman, Measurement of Output of Research and Experimental Development,UNESCO, Paris,1970, p.10.

[2] - C. Freeman, Op cit. p.11.

[3] - M. J. MORAVCSIK, Applied Scientometrics: an Assessment Methodology for Developing Countries, Scientometrics vol. 7 Nos. 3-6, (1985) p.165-176.

[4] - S. Arunchalam, K.C, Garg., A Small Country in a World of Big Science: A Preliminary Bibliometric Study of Science in Singapore, Scientometrics, vol 8, Nos. 5-6 (1985) p. 305.

[5] - Youngyuth Yuthavong, Bibliometric Indicators of Scientific Activity in Thailand, Scientometrics Vol. 9 Nos. 3-4 (1986) p. 139.

[6] - A. Schubert, A. Telcs, Publication Potential an Indicator of Scientific Strength for Cross-National Comparisons, Scientometrics Vol. 9 Nos. 5-6 (1986) p. 232.

[7] - EPRI, EPRI Research and Development Categories, Micro EPD, Software User's Guide, EPRI, Palo Alto, California, 1985, Appendix A.

[8] - EPRI, EPRI Thesaurus, Palo Alto, California, 1985.

[9] - ONU, Un Sistema de Cuentas Nacionales, 1970 cap. V.

[10]- DIGITAL, Vax-11 Datatrieve, Reference Manual, Digital Equipment Corporation, Maynard, Massachusetts, 1983.

[11]- IIE, Compendio de Divulgación Tecnológica, ST/EC/DT/1, IIE Palmira, Morelos, 1987.

[12]- C. Lopez-Cerdan et al, The IIE method for assessment of publications and conferences, 1988, to be submited to Scientometrics.

[13]- C. Lopez-Cerdan et. al. Panorama de la divulgacion tecnologica en el IIE, Fasciculo 1, Datos base sobre la procedencia u origen de la produccion generada en el periodo 1977-86, Reporte Interno, IIE, Secretariado Tecnico, Dec. 1987

[14]- C. Lopez-Cerdan et. al. Panorama de la divulgacion tecnologica en el IIE, Fasciculo 2, Datos base sobre la calidad, orientacion y destino de la produccion generada en el periodo 1977-86, Reporte Interno, IIE, Secretariado Tecnico, Apr. 1988

APPENDIX

TABLE 1

APPLICATION AREAS

1 ENERGY RESOURCES AND OTHER RELATED NATURAL RESOURCES
- Energy overview
- Fossil fuels
- Nuclear energy
- Geothermic fluids
- Alternative energy sources
- Solar radiation
- Wind energy
- Biomass and others

2 POWER PLANTS, SYSTEMS AND PRIMARY ENERGY CONVERTORS
- Fossil plants
- Geothermal plants
- Nuclear plants
- Solar plants
- Thermic equipment and materials
- Turbo machinery and rotative equipment

3 ELECTRIC POWER SYSTEMS, INSTALLATIONS AND EQUIPMENT
- Transmission and distribution networks, lines and substations
- Environment disturbance and protection
- Operative disturbance and protection
- Pollution
- Insulators and dielectric materials
- Electrical equipment and ferromagnetic materials
- Testing systems and installations

4 CIVIL CONSTRUCTIONS AND STRUCTURES FOR POWER PLANTS AND ELECTRICAL INSTALLATIONS.
- General overview
- Structures and foundations of thermic plants
- Dams and hydraulic constructions
- Structures for transmission and distribution lines

5 SYSTEMS AND EQUIPMENT FOR ANALYSIS, AUTOMATIZATION AND CONTROL OF ENERGY AND INDUSTRIAL PROCESS.
- Simulation, confiability and control models and systems
- Electrical operating systems advanced software
- Instrumentation systems and equipment
- Telecommunications systems and accessories
- Computer systems for industrial operations and activity mechanization

6 HUMAN RESOURCES DEVELOPMENT AND TRAINING
- Technical information services
- Specialization and training programs
- Elements for technological planning and evaluation

7 ELECTRICAL SECTOR R AND D CONTEXT

Note: This classification is a resume of the large classification applied, where each subitem is subdivided into 5 levels.

TABLE 2

ECONOMIC SECTORS

1 R and D INSTITUTES.
2 HIGHER EDUCATION INSTITUTIONS
3 INDUSTRY.
- Electrical power utilities
- Factories
- Publishing companies
- Industrial associations
4 NON PROFIT ORGANIZATIONS
- Scientific societies
- Professional associations
5 - INTERNATIONAL ORGANIZATIONS
6 - GOVERNMENT
7 - PERSONS
8 - MULTISECTOR

TABLE 3

MEDIA CLASSIFICATION

1 - WRITTEN MEDIA
- Scientific and technological journals
  . journals reported at the Science Citation Index (SCI)
  . journals not reported at the SCI
    + with strict referee review
    + without referee review
- Dissemination journals
- Books
- Contributions to books
- Monographs
- Conferences, symposia, congress, seminar, and panels (that publish proceedings)

2 NON WRITTEN MEDIA
- Congress
- Conventions
- Seminars
- Round tables
- Meetings
- Lectures

TABLE 4

PUBLICATIONS CONTENT

1 COMPLETELY NARRATIVE PRESENTATIONS
Accompanied by some numerical data and elemental drawings or figures

2 NARRATIVE PRESENTATIONS
Accompanied by flow charts or process charts, including some parameters or detailed drawings of specific apparatuses

3 SEMINARRATIVE PRESENTATIONS
Accompanied by mathematical formulas and models

4 NON-NARRATIVE PRESENTATIONS
Accompanied by an abundance of codes, mathematical formulas and models

TABLE 5

(EXAMPLE OF THE BIBLIOGRAPHIC NOTES THAT ARE PRESENTED IN THE MAIN SECTION OF THE COMPENDIUM)

IIE PUBLICATIONS AND CONFERENCES COMPENDIUM

APPLICATION AREA AND TITLE	MEDIA AND ESPECIFICATIONS	AUTHORS RESEARCH UNITS AND R&D PROJECT NUMBER
ELECTRIC POWER SYSTEMS, INSTALLATIONS AND EQUIPMENT		
LINES, SUBSTATIONS AND NETWORKS		
Grounding Networks		
REVIEW OF ANALYTICAL METHODS FOR CALCULATING THE PERFOMANCE OF LARGE GROUNDING ELECTRODES. PART I: THEORETICAL CONSIDERATIONS.	a) IEEE TRANSACTIONS ON POWER APPARATUS AND SYSTEMS b) LOS ANGELES, CA (EUA) c) NOV-85 d) VOL.PAS104,No11 e) PP 3124-31	* NAGAR RAMISH (TATA CONSULTING ENGINEERING) VELAZQUEZ SANCHEZ RAUL (TRANSMISION Y DISTRIBUCION) * LOELOEIANT MANSOUR (ECOLE POLITECHNIQUE DE MONTREAL) * MUKHEDKAR DINKAR FORTIN (ECOLE POLITECHNIQUE DE MONTREAL) * GERVAIS YVONE (ECOLE POLITECHNIQUE DE MONTREAL) 1988
REVIEW OF ANALYTICAL METHODS FOR CALCULATING THE PERFOMANCE OF LARGE GROUNDING ELECTRODES. PART II: NUMERICAL RESULTS.	a) IEEE TRANSACTIONS ON POWER APPARATUS AND SYSTEMS b) LOS ANGELES, CA (EUA) c) NOV-85 d) VOL.PAS104,No11 e) PP 3134-31	* LOELOEIANT MANSOUR (ECOLE POLITECHNIQUE DE MONTREAL) VELAZQUEZ SANCHEZ RAUL (TRANSMISION Y DISTRIBUCION) * MUKHEDKAR DINKAR FORTIN (ECOLE POLITECHNIQUE DE MONTREAL) 1988
A PRACTICAL PROBABILISTIC METHOD TO EVALUATE STEP AND TOUCH VOLTAGES	a) IEEE TRANSACTIONS ON POWER APPARATUS AND SYSTEMS b) LOS ANGELES, CA (EUA) c) DIC-84 d) VOL.PAS103,No12 e) PP 3522-35	VELAZQUEZ SANCHEZ RAUL (TRANSMISION Y DISTRIBUCION) * WANG WEN (ECOLE POLITECHNIQUE DE MONTREAL) * GERVAIS YVONE (ECOLE POLITECHNIQUE DE MONTREAL) * MUKHEDKAR DINKAR FORTIN (ECOLE POLITECHNIQUE DE MONTREAL) 1988
ETUDE COMPARATIVE DE DIFFERENTES METHODES DE CALCUL DE LA MISE A LA TERRE	a) CANADIAN ELECTRICAL ENGINEERING JOURNAL b) MONTREAL, P.Q. (CANADA) c) JUL-84 d) VOL. 9,No. 3 e) PP 117-122	* LOELOEIANT MANSOUR (ECOLE POLITECHNIQUE DE MONTREAL) VELAZQUEZ SANCHEZ RAUL (TRANSMISION Y DISTRIBUCION) * MUKHEDKAR DINKAR FORTIN (ECOLE POLITECHNIQUE DE MONTREAL) * GERVAIS YVONE (ECOLE POLITECHNIQUE DE MONTREAL) 1988

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